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ABSTRACT

Telephone interviews were conducted with key individuals in each of the 50 states to gather information on both the most successful and the least successful technology-based educational projects at the elementary and secondary levels in each state. The survey was designed to elicit information on the following: (1) the instructional needs addressed by technology-based distance learning projects; (2) the subject matter areas involved in these projects; (3) the levels and types of students for whom these projects are intended; (4) the technologies used by these projects; (5) results of evaluations of the effectiveness of these projects; (6) the participants' perceptions of the instructional value of the projects; (7) the cost-effectiveness of the projects; (8) and other instructional needs not addressed by the projects. This report provides a description of the survey methodology and procedures; a summary of the results of the analysis of data for each of the questions that were obtained through the interviews and any associated materials collected from the states; and six suggestions for further inquiry. Two appendixes contain state-by-state summaries of the findings for each state and copies of the survey materials used, including the interview questionnaire. (EW)

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STATEWIDE EVALUATION REPORT ON PRODUCTIVITY PROJECT STUDIES RELATED TO IMPROVED USE OF TECHNOLOGY TO EXTEND EDUCATIONAL PROGRAMS

Sub-Report Three: Survey of Technology Projects Throughout the United States

Submitted to the

Utah State Office of Education

Submitted by the

Wasatch Institute of Research and Evaluation

Prepared by

D. William Quinn
and
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January 1987

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Introduction

Realizing that most public school personnel do not have the time to publish their activities and findings to a wide audience and that Utah could benefit from knowing what was being done in other states, a survey of states was proposed. The intent was to contact the most knowledgable person in each state and gather all information relevant to the evaluation questions they could provide. An exhaustive survey of everyone in every state who might provide data was not feasible within the project budget.

The report is organized thus: First the evaluation questions addressed by the Survey of States are listed; second, the methods used to conduct the Survey are reviewed; finally, a summary of findings across all the states is presented. A state by state summary of findings related to the evaluation questions is presented in Appendix A.

Questions

The evaluation questions addressed by the Survey of States encompassed nearly all the questions asked in the larger project, but from the perspective of all the states, not just Utah. Also, we asked the respondents to report on projects in their states that involved distance education rather than technology generically because that focus seemed more relevant to the projects currently operating in Utah and because a wider focus could not be addressed adequately given the budget for this project. The questions were:

1. What instructional needs do technology based distance learning projects address?
2. In what subject matter areas are these needs addressed?
3. For what levels and types of students are these needs addressed?
4. What technologies are used to address these needs?
5. What evaluation results have been obtained regarding projects' effectiveness?
6. What are participants' perceptions of the projects' instructional value?
7. How cost-effective are the projects?
8. What other instructional needs are not addressed by the projects?

Methods

To address these questions, a telephone survey was conducted. An instrument was developed, respondents from all fifty states were selected, interviews were conducted and associated materials from some states collected, the data were analyzed and the accompanying summary generated. The methods for these activities are described briefly below.

Survey Instrument Development

Based on the evaluation questions stated in the proposal for this evaluation project and results from the case studies, an interview protocol was generated to gather information about the most and least successful technology based distance education projects in each state. An interviewing process for identifying the appropriate respondents was also created. This initial draft protocol was tested on a small number of educators in Utah who were not part of the target population but who had knowledge of distance learning technologies and related applications.

After several trial surveys were completed, the protocol was revised and tested on a second set of educators to see if the process would successfully gather the information needed. These educators were the Utah State Office of Education officials responsible for technology projects in the state. A few minor revisions were made to the interview protocol and process based on this second test. The final instrument is presented in Appendix B.

Sampling Respondents

A comprehensive list of representatives from the fifty states who are responsible for technology or distance learning projects in public schools was not available. Such a list would have been helpful in identifying respondents to the survey because we wanted to find one person per state who could summarize the distance learning projects in his/her state.

As an alternative strategy, a listing of state offices of education was used to make initial contact. During the first call the receptionist was given a brief description of the kinds of information to be covered in the survey interview and then several calls were made until a person was identified who was recommended by others and acknowledged themselves that they were the most knowledgable person in the state regarding the issues covered by the survey. This was most often a person (or persons) responsible for technology in the state department of education or a consultant to that agency . If he/she could not provide complete answers to all survey questions, other state office personnel or project specific persons were called.

Response Rate

Three state representatives declined to be interviewed over the telephone, asking that a copy of the survey be mailed to them. They did respond to the mail survey. Combined with the telephone survey, this constituted a 100% response rate.

Collection of Information

Length of the interviews varied dramatically from seven minutes with respondents who requested that the instrument be sent to them, to 112 minutes with persons in California. An average of 38 minutes were spent per interview for a total of well over 30 hours. It took more than twice that long to track down the appropriate respondents (over 70 hours).

During interviews, respondents sometimes referred to related literature or reports. We asked for copies of all such materials and received several (these are named in the state summaries in Appendix A and are archived in Dr. Williams' files for future reference through the Utah State Office of Education). Also, a one page project-specific questionnaire was mailed to several respondents to gather information about other projects in their state which we did not take time to discuss during the telephone interview (this survey is also presented in Appendix B).

Analysis of Information

When the majority of interviews were completed, the surveys were used to summarize responses to the evaluation questions under the following topic headings for each state: needs addressed, subjects taught, students participating, technologies used, evaluation results obtained, participants' perceptions, associated costs and other needs still faced. These state-by-state summaries are presented in Appendix A for use by persons in the Utah State Office of Education. Some of the highlights across all states are presented briefly in the rest of this report.

Results Across States

A brief review of the state-by-state summary in Appendix A indicates that some states have been very active in technology based distance education and others have done very little. However, it is clear that much more is going on than the literature available in journals and indices of unpublished documents (ERIC) as reported in sub-report number two for this evaluation project would suggest.

Rather than comprehensively review all elementary and secondary technology based distance education programs, this report should serve as a tour guide to the interested inquirer. Much more information is available through contacting the state department of education in the state sponsoring a project. Also, although we intended to gather data on less successful as well as the best projects, respondents were reluctant to say much about the problems, not wanting to leave a negative impression regarding any of their projects. Therefore, the summaries in Appendix A should be used to guide further inquiry by interested parties into the specific projects and experiences of selected states.

Needs Addressed

The most common need addressed by technology based distance learning projects is equity between the small rural schools and their larger urban conterparts. The inability of small schools to offer courses and other educational experiences equal to those offered in larger schools is a common problem and of significant social and economic importance in almost every state in the union. Eighty-two percent of the states identified equality as the principal need being addressed by these projects.

Nearly half (44%) of the states also reported a need to enhance the curricula they offer through the use of additional learning experiences and exposure to external information sources such as famous personalities. Declining student enrollments are increasingly restricting many schools' abilities to offer all the courses they are used to having. Distance learning technologies such as educational television are seen as one way of expanding the classroom beyond normal city or state bounds to include such resources. The use of the technology itself is also seen as a skill young people today need to develop.

Subjects Taught

Nearly every subject imaginable is taught via technology based distance education projects. Advanced placement courses are very popular (about 45% of the states mentioned this application) because it more difficult to obtain qualified teachers for the small numbers of students able to take them and because those students are usually mature and independent enough that school officials are willing to enroll them. There is no evidence available to indicate which subjects are taught best via this process versus those which are difficult to teach this way.

Students Participating

Although there are distance education programs for all ages, courses for high school students are most frequent (45% of the states) apparently because these students need such offerings to give them an equal opportunity to prepare for higher education. In about 20% of the states (where the only distance education programs are those that are

presented through the PBS TV networks), the majority of such programs are produced for elementry level students. In states where more costly technologies are used (about 60% of the states reporting), high school students are more frequently targeted (in 85% of these states).

Most respondents agree that students should be mature and self-disciplined to participate effectively in this type of instructional experience. Often only the most motivated students are targeted for the classes offered.

Technologies Used

All 50 states have public television stations and by far the most common technology used (80% of the states) with the most variety in formal educational programs offered and shear numbers of subjects to choose from is educational television. Such programs have been used for long periods of time and have high percentages of teachers who report using them. For example, one state reported that over 95% of its classes used these TV programs during the school year.

One way television transmissions utilize a variety of technologies, often in combinations. About half (47%) of the states reporting said they use standard broadcasting systems, 31% use satellites, 18% use PBS stations only, 9% use cable, 9% use I.T.F.S., 9% use micro-wave, and 9% reported using videotapes at the remote sites.

Two way teleconferencing is added to the one way transmissions in many states. Employing telephone lines (often dedicated lines) for carrying visual (computer programs in 38% of the states) and two-way audio teleconferencing (in 51% of the states) is the second most frequent use of technology. Instruction using this technology can reach almost anywhere. All the users have to do is dial a number to engage the network and obtain the programing (which could be live classroom discussion or preprogrammed graphic displays). The use of programmed instruction through computers, light pen devices and phone line teleconferencing allows for prepared graphics programs and group discussions. Some parts of the instruction can be preprogrammed, then modified and

discussed as students and teachers interact. The resulting instruction resembles a traditional classroom where the teacher presents a lesson on the chalkboard, students ask questions and the teacher responds by writing explanations on the board and talking to the students at the same time. The only thing missing is seeing the teacher face-to-face on a daily basis.

Other devices can be used in conjuction with phone systems to provide live audio and visual teleconferencing. For example, television equipment provides two way pictures and sound in 20% of the states, electronic chalkboards are used in 13%, and fiber optics technology is being explored in several states.

Computer assisted instruction is used extensively both through telecommunications networks and for non-linked programs which allow students individual instuctional drill and practice at their own speed and level. This is a relatively inexpensive distance learning technology which allows considerable flexibility. Electronic mailbox networks are also used (though mainly for faculty) in about 20% of the states surveyed.

Evaluation Results Obtained

Very few of the programs reported on by interviewees had been formally evaluated. About 11% said they had no programs to evaluate; 38% reported no evaluation results for the programs they described; and although 51% said they had conducted evaluations, only 20% provided any evidence. As a review of the summaries in Appendix A will show, only a handful of those studies actually gathered data in a disciplined way.

The strongest evaluations reported (there may be others which will be sent to us which were not reviewed in time for inclusion in this report) appeared to be of programs in Utah and Nevada. The results of those studies which are summarized briefly in Appendix A, essentially confirm results obtained through the case studies and participant surveys (summarized in sub-report one and in the Summary and Recommendations report) and will not be repeated here.

Most of the evaluations simply note that programs are being used, students who would not otherwise receive critical instruction are being exposed to it and that participants seem to enjoy the experience. More formal evaluations of these projects are needed.

Participants' Perceptions

In nearly every case in which surveys had been conducted to gather reactions of participants, the respondents surveyed reported that the technologies they were using fill the needs they were designed to address and are well accepted by students, parents and teachers alike. In most cases they were just happy to be receiving programs for students who had gone without such classes before the new distance learning programs were available. However, the majority of respondents to the telephone survey did not have data regarding participants' perceptions. They could only speculate that participants must like their progams because of increased enrollments in them or other such evidence. Once again, there is a great need for more evaluative information regarding the impact of distance education programs.

Associated Costs

Costs for setting up and servicing all the technologies reported are high. However, the response of most of the interviewees' to these high costs was that distance learning programs cost less than trying to set up and maintain a traditional classroom when very few students are involved. Often there is no qualified teacher available in rural areas, even if the school wanted to hold class with only a few students. For the most part, the use of distance learning programs is seen as the only option a school district has for some needed curriculm offerings.

The difficult questions, which can not be answered with the data collected here, nor by any of the evidence identified by the respondents, are "what type of distance learning system is most cost effective? Which approach or combination of approaches is most appropriate for a given need, a certain subject matter, and particular students? As discussed in the Summary and Recommendations report, these questions require serious evaluation

and disciplined inquiry, including cost/benefit analysis, in addition to policy decision making.

Other Needs

In essentially every state, the first concern respondents have for meeting future needs is to expand existing distance education systems to meet the needs of more students in more subject areas. Most of these programs are new (operational in only the last 2-3 years) and currently serve limited target areas, essentially on a trial basis. Although they lack convincing evaluative evidence that what they are doing provides truely effective instruction, proponents are anxious to make what they have available to everyone. Even the public TV stations which reach large percentages of the student populations are continually trying to expand and offer more programs.

Other Resources

In addition to the interview data and the documents mailed to us by representatives of the states, three other documents were identified which contain useful information that ought to be studied in depth as the state of Utah continues to plan appropriate uses of technology and distance education. Each of the resources is reviewed briefly below. They are on file in Dr. Williams' office and can be obtained from the sources identified as well.

Governors' Report

A document titled "Time for Results: The Governors' 1991 Report on Education" was produced by a Task Force on Technology in August 1986. It is published by the National Governors' Association Center for Policy Research and Analysis, 444 North Captitol St., Washington, D. C. 20001-1572. In this publication, the activities of the Task Force are summarized, two papers (Making Effective Educational Use of Advanced Technology by Cindy K. Currence and Policy Recommendations for Developing Appropriate Uses of Technology in Schools by Stanley Pogrow) are presented and highlights of activities and policies associated with technology in education throughout the states are summarized.

Although the focus of this manuscript is on technology generally, the authors emphasize computers much more than distance education and related technologies. They refer to research briefly, but present very little evidence from specific inquiries to support their policy recommendations. However, they raise important issues which ought to be considered in Utah if they have not been addressed yet.

Telecommunications

The Corporation for Educational Telecommunications (McCormack Building/ One Ashburton Place/ Boston, MA 02108), associated with the Commonwealth of Massachusetts conducted a "Survey of Out-of-State Telecommunications Systems in August, 1984. The focus of the study was much broader than K-12 education and much narrower than distance education; they were interested in what each state was doing in terms of telecommunications for all conceivable purposes. However, they produced an excellent state-by-state summary of telecommunications programs which may be useful to districts and the State Office in planning future projects.

Canadian Survey

In February, 1986, Anna Stahmer of the International Development Centre in the Ryerson Polytechnical Institute (350 Victoria Street, Toronto/ Ontario, Canada M5B2K3) produced a report titled "Communications Technology and Distance Learning in Canada--A survey of Canadian activities." Once again, as is evident in the literature review for this project (see sub-report number two) and in the other two sources described above, most of this data is particularly relevant to higher education. Also, Stahmer reports on Canadian activities, not American ones. However, the report provides an interesting context for understanding what is happening in Utah in distance education.

Recommendations

Based on the results obtained from this survey of representatives from the states, the following suggestions for further inquiry are presented.

1. Persons in states which are involved in projects similar to those operating or planned in Utah ought to be contacted to gather more specific suggestions, instructional materials and evaluative evidence.

2. Projects in other states that sound like they might address high priority needs in Utah ought to be contacted and studied in greater depth.

3. Networks with project personnel in other states might be considered to facilitate the sharing of information and resources (as is being done with telelearning between Garfield, Wasatch and Mansville, Pennsylvania and with the Spanish Accelerated Learning Project).

4. More information from these state projects ought to be published or at least made available through ERIC and other indices so they are more readily available for review.

5. Based on the lack of information from these states, more basic inquiry is needed into which instructional needs, with which students, in which subjects can best be addressed with distance education, using which technologies, at what costs?

6. The fact that so few states are seriously evaluating their distance education programs provides even more incentive for Utah to lead the way in doing so.

Appendix A

State-by-State Summary

Alabama

Needs Addressed
To reach equity in smaller schools that cannot provide needed curriculum because of high cost per student.

Subjects
All core curriculum subjects are included in the ETV network programming and the video library system.

Students
All students K-12 can utilize the video library system. About 85% of the teachers in the state use some ETV programs in their class during the year.

Technology Used
Alabama, in conjuction with other Southern states, has developed a video library system with video tapes and computer software that can be borrowed. They also have an educational television network which is broadcast using standard methods.

Evaluation Results
None except for utilization figures for the two systems on a yearly basis.

Participant Perceptions
Some feel the 85% utilization figure for ETV is high given the age of many of the programs and shrinking funds.

Associated Cost
Unknown, but not enough to meet their curent or future needs.

Other
Alabama would like to see the development of a sharing network between states to promote the use of technology in education.

Alaska

Needs Addressed
Alaska needs a means of providing instruction to small groups of students spread over a large geographic area. From 1980 to 1986, project "Learn Alaska" was designed to address this need; however, because of economic difficulties in the last few years, Alaska has no operational, state sponsored, distance learning project at this time.

Subjects
Nearly all subject areas were included in this project.

Students
All levels of schooling were included in the distance learning project (K - college)

Technologies Used
"Learn Alaska" was a network using low power satellite to broadcast 400 instructional television programs throughout the state to 250 communities and an audio (telephone) conferencing network involving 340 sites, with capacity for up to eight sites being linked together in an audio conference at one time. The percentage of instructional time covered by the project varied from course to course, with a maximum of 100% to a minimum of 50% of the time.

Evaluation Results
The network was being used by larger numbers of teachers and students with each year of operation. Several conclusions based on this experience were reached by William J. Bramble in a paper presented in September, 1986[1] although formal evaluation results were not available:
1. "Hardware and engineering aspects of communications and computer technologies are better understood than the associated educational theory and design components... Additional sophistication in the educational design and development areas needs to be developed if distance education is to reach its potential."
2. "The cost of technical components and educational product development was but a fraction the cost of proper implementation and on-going support... However, we had consistent difficulty obtaining long-range commitments to funding the support elements once the glamor of the new equipment purchase had faded."
3. "Distance education programs should be user-driven and not technology-driven... In the design process a key challenge is that of determining the best combination of technologies for a particular educational application."
4. "Educational institutions are resistant to change... Given this resistance to change and protection of turf, we had our greatest successes in applying technology and distance education techniques that were non-threatening, that complemented the existing institutions and programs, that fit into existing structures, that made peoples' jobs easier or helped them to do a better job of what they were already doing. When installing applications that also involved substantial institutional changes we had less success."
5. "Distance education programs... while not a panacea, do provide a substantial measure of additional quality in rural schools [which] often face major problems in providing quality education because of their small size, isolation, and makeup."
6. Although distance education may be expensive, "as long as the cost of development and

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[1] See Bramble, William J. "Distance Learning in Alaska's Rural Schools"

delivery are consistent with the numbers of potential students in the marketplace (e.g., doesn't involve a multimillion dollar system for a handful of students), it is our experience that course delivery can be provided at a very attractive per-student cost in comparison to instructional delivery through traditional means. In evaluating costs, it is necessary to look at the cost of distance delivery as an alternative, rather than an add-on, to the existing method of delivery."

Participants' Perceptions

There was a general belief that if it were not for the funding problems associated with recent drops in oil prices, that this program would be active and of great value to teachers and students in the Alaskan school system.

Associated Costs

Hardware and setup costs were high and constituted only a small part of the cost of running this system. But given added curriculm experiences and the high cost of duplicating the same programs using traditional classrooms, the network was judged to be cost effetive.

Arizona

Needs Addressed
To expand curriculm offerings by using the combined resources of schools throughout the state and nation the A.S.S.E.T. system has been operational since 1984.

Subjects
Essentially all subject areas are addressed in the 87 tele-coures offered each year through this system.

Students
The levels of students included K-12 .

Technologies Used
A one-way PBS station that is dedicated to tele-coures 2.5 hours a day, five days a week. These coures are broadcast throughout the state and some areas of South Carolina. All teachers are provided with a program schedule, a teachers' guide and workbook. These materials may be used to conduct supportive pre and post-broadcast activities in individual classes. About 50% of the instructional time is spent viewing the broadcasts and 50% is spent in teacher directed preparation and review activities.

Evaluation Results
Attitudes of the teachers who are using the program are favorable. There are now over 1200 teachers using the program each year. No formal evaluations have been made. The respondent cautioned that such systems must meet the needs of teachers by adding to the normal classroom curricula if they are to succeed.

Participants' Perceptions
This program is paid for through subscriptions. The high subscription rate alone is interpreted by respondents as an indication of acceptance by participants.

Associated Costs
The cost of use per child is one dollar per year.

Other Needs
The developers of this program hope to expand the tele-course offerings and the number of paid subscribers in the system. They have survey data indicating that some progams are being used by non-paying schools and classes. If all paid, they would be able to upgrade the program content so that all would benefit. They hope to incorporate a two-way interactive capability in the future.

Arkansas

Needs Addressed
To increase the number of classes offered in smaller rural schools and to enhance the curriculm currently offered, several different programs have been tried since 1985.

Subjects
Foreign languages (German and Spanish) and others offered through TI-IN.

Students
Mainly rural students (grades 9-12) who have not had the opportunity to study a foreign language or other subjects in more traditional ways.

Technologies Used
This year (86-87) they are receiving several out of state programs from TI-IN, out of Texas, Distance Accelerated Learning: Spanish from Utah , and a German language program out of Oklahoma State University. All three programs use satallite transmission with various means of allowing students to participate in two-way question and answer interactions. The programs are being trialed at one school with one class. Students spend two days per week participating on the system and three days per week doing computer assisted work.

Evaluation Results
The several types of programs are being used to determine which will best address the state's needs and situation. They hope to be able to answer these questions by the end of this program year. The Spanish satellite program is being evaluated by Utah and results should be available through that State Office of Education.

Participants' Perceptions
At this time all three programs have received favorable comments by participants. None appears to be preferred clearly over the others. There is a general assumption that this type of technology will be an important means of meeting future curriculum needs.

Associated Costs
No information has been gathered.

Other Needs
Expanded use of these technologies in the future to address other curriculm areas.

California

Needs Addressed
Californa is a large state which varies so much in types of student populations that there is no central , state sponsored distance education program, with the exception of a large PBS network that is administared through seven regions. Each region operates independently of the others, although they share some programs. This is not to say that there are no distance learning projects in Califonia; but they have local origins and generally are not state sponsored.

To illustrate the kinds of programs in California, the respondent described a Data Base Network in Mendocina County which began during the 1985-86b school year to provide students access to information relevant to projects they are completing. It was assumed that local libraries and media centers did not have the extensive information available through this source.

Students
Mostly 7-12 grade level students use the system; but it is available to all students.

Technologies Used
A micro-computer installed in the media center at each school in the district is linked by phone line to a central computer containing the large data base.

Evaluation Results
No results were available.

Participants' Perceptions
Use of the system was high among students, indicating their acceptace of this program.

Associated Costs
Not documented

Other Needs
The effectiveness of distance learning versus traditional methods of teaching needs to be demonstrated.

Colorado

Needs Addressed
Equity between rural and urban schools in curriculm offerings is the reason for the Fairview-Nederland telecommunications project which was started during the 1985-86 school year.

Subjects
Subjects being taught at this time are advance placement English and Calculus.

Students
Only juniors and seniors are involved in the program. A class in one high school is being broadcast live to a second site where students receive the instruction for 100% of the instructional time.

Technologies Used

A two-way audio and visual link is made through a dedicated phone line. A slow scan visual image is transmitted through a computer and an electronic chaulboard is used too. A speaker phone is used for the audio.

Evaluation Results

A paper discribing the program findings was being written at the time of the survey. The initial perception is that although there were scheduling conflicts between the two schools, this program will help rural students complete course they could not otherwise have.

Participants' Perceptions
There is a lot of excitment in Colorado about the possability of setting up similar programs in other schools with other curricula.

Associated Costs
Not documented

Connecticut

Needs Addressed
To offer equality between schools so that each may offer a curriculm that is more extensive than could be developed by individual schools, the West Hartford project began during the 1986-87 school year.

Subjects
Russian I and II , German, and Chinese.

Students
Upper level students who want extra curriculm offerings and are able to handle them. Class is offered as eighth period (extra) each day with students in two schools.

Technologies Used
A television broadcast of the subject matter is viewed by both sets of students. Then the students at the two schools link up with teacher monitors for audio and visual (slow scan) interaction to practice the skills through a phone line dedicated to this program.

Evaluation Results
None yet; it is all so new they are still developing this progam. However, there has been some straining of relationships with the teachers who fear losing part of their responsibility and their jobs. Success will depend somewhat on careful planning and coordination with the school district officials, school board and teachers' union.

Participants' Perceptions
For those who want a more extensive program, this seems to be a very flexible way to supplement the curriculm.

Associated Costs
Unknown

Other Needs
Eventually they hope to use a new more flexible system using fiber optics for the two way instructional transmission. There is also a need for short wave television (I.T.F.S.) stations to handle informational programing.

Delaware

Needs Addressed
There are no isolated schools so they use distance education technology to enhance existing programs through a program titled "Project Direct" which began in 1976. This program provides all public and private schools access to a telecommunications network tied into a centralized computer system to allow students access to computer programs from their own classrooms.

Subjects
Drill and practice on core curriculm subjects.

Students
All students have access to the system.

Technologies Used
There is a base station that holds a data bank of computer programs that may be accessed by a local phone call. Using an Apple computer with a modum, the teacher or students can use any of the many programs when needed. A typical program consists of 15 minutes of drill and practice in specific content area. Only about 5% of the students' instructional time in those content areas is spent with this program.

Evaluation Results
Study on program results is in progress and should be done in September of 1987.

Participants' Perceptions
The state feels that this program is of great value and is offering to network this program to many other states[2].

Associated Costs
Not documented

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[2] See Brennan, Thomas F. "A Proposal"

Florida

Needs Addressed
Information and resources are needed by individual districts to use in tailoring improvements to their curricula. Therefore, a video program library has been established for use by all schools in the state.

Subjects
All subject areas are addressed by the video program library system.

Students
All student in K-12 have access to these resources.

Technologies Used

Low powered short distance I.T. F.S. systems are shared by two or more districts in the same geographic areas. Then programing is schedualed by each station to fit the districts individual needs upon their requests. Teachers determine how often they want to use the educational programs.

Evaluation Results
None

Participants' Perceptions
This area-specific programing meets the needs of each group because it is responsive to the needs of the users. With the state sponsored program library's growth in numbers of available programs and the I.T.F.S. station's own efforts in developing and acquiring new programming, respondents believe this system will continue to be responsive to educators' changing needs.

Associated Costs
Not documented

Other Needs
They are looking at using satellite transmission of programs to local I.T.F.S. groups. They will also expand their library offerings and add micro-computer programs to the system.

Georgia

Needs Addressed
The main need is enhancement of curriculum offerings through the Georgia Public Television Network which began in 1960.

Subjects
Programming covers the full range of curriculm offerings as needed.

Students
All students have access to programing in the state (K-12)

Technologies Used

A nine station public television network broadcasts live and taped programs. Standard television methods are used.

Evaluation Results
No results have been gathered although it was noted that a high precentage of teachers include programs from the network in their curricula.

Participants' Perceptions
Well accepted.

Associated Costs
Not documented.

Other Needs
No plans for any other types of distant learning technologies. May expand the present network to include new programs.

Hawaii

Needs Addressed
To help students access other cultures and learn how to use these learning tools themselves, this "Foreign Telecommunications project" has been in operation since 1984. The project uses the technology to reach smaller remote schools with added curriculum opportunities.

Subjects
Japanese,Chinese,Taiwanese, Korean, French, German, and Portugese

Students
All high school students.

Technologies Used
The project establishes a direct telephone contact with students of the target language (i.e., Chinese students in China). Computer contacts are made using an electronic mail box -pen pal system. Lastly a two way slow scan video with audio phone link system is used to hold joint classroom discussions with the foreign students. All this techology is used to enhance traditional learning methods.

Evaluation Results
A report was being prepared at the time of the interview and was to be forwarded but had not been received yet.

Participants' Perceptions
The respondent believes this program has inceased the ability of the students to speak the target languages.

Associated Costs
The cost for the technology is high but the on-line costs for the phone links for use with the computers and conference call plus slow scan video averages only about $1.50 per minute. Other costs should be documented in the forthcoming evaluation report referred to above.

Other Needs
We hope to use the new fiber optic technology along with some new video cameras.

Idaho

Needs Addressed
The need for equality between rural and urban schools has led to a plan for an "Idaho Distance Learning Project" which will begin in three schools and three classes during the 1987-88 school year.

Subjects
Advanced math analysis.

Students
Juniors and seniors who hope to continue their education in a college setting.

Technologies Used
A combination of live video programs transmitted over a satellite system and computer assisted instruction through a centrally based program for practice and drill.

Evaluation Results
None yet, this program is set to start the fall of 1987. However, the respondent reported that they have learned that it takes a long time to move from understanding there is a need to operationalizing a project such as this.

Illinois

Needs Addressed
To help establish a stronger curriculm base for all schools and to share resources with the smaller rural schools, a network of closed circuit TV programs has been created in three schools, one classroom per school.

Subjects
A broad range of advanced placement classes are offered, including science, advanced math, secretarial skills, chemistry, and Spanish. Thses subjects are mostly for the advanced placement students.

Students
High School level students.

Technologies Used
Closed circuit TV via cable transmissions with visual and audio capabilities plus computers are used in the system. Four camras are used at each site with multiple microphones to facilitate discussion and asking of questions.

Evaluation Results
An initial evaluation suggests that the students at the receiving sites did better on average than the students in the classroom where the teacher was conducting the class. Because these are advance placement students, they have high motivation for learning and this approach seems to effective for them. More inquiry needs to be done to see if this program works with average students too.

Participants' Perceptions
Public reaction in the four counties in which the network is operational is very favorable.

Associated Costs
Because of the low numbers of students at each site, the classes would be too expensive compared to the traditional methods. However, there often are no qualified instructors available in the rural areas and such a program may be the only feasible one.

Indiana

Needs Addressed

The use of the distance learning technologies should be used in areas where the traditional methods are too expensive or in the case of special courses where a local teacher can not be found. Although they are planning to create a system using fiber optics by 1990, there are no state-wide or even district-wide programs in operation now.

Participants' Perceptions

Respondents feel that there is no evidence supporting the use of technology based distance education over the traditional methods. They are skeptical.

Iowa

Needs Addressed
To aid in helping smaller schools keep the full range of curriculum offerings by using TI-IN program to hopefully meet this need.

Subjects
Latin, 3 other foreign languages, and math.

Students
Grades 9-12 with six schools hooked up to TI-IN in seven class rooms.

Technology Used
Standard satelite reciever and telephone conferencing line for questions and problem solving.

Evaluation Results
The TI-IN program meets the needs of students that are motivated to learn--advanced placement students. In one school all algebra students were put in the TI-IN class with mixed results. The students with good scholastic records did well, while those with poorer records did not do as well. Now only AP students are allowed to take the class.

Participant Perceptions
That distance learning technology can be used with motivated students to fill the needs for advanced placement courses.

Associated Cost
See TI-IN cost in Texas.

Other
They feel a need to better define which technologies are cost-effective and can be used by the general student population.

Kansas

Needs Addressed
The role of distance learning is to expand curriculm offerings not available because of expense or personnel unavalablity. Currently, five projects originating out of state are in operation. These began during the 1985-86 school year and impact on 22 of 304 districts.

Subjects
German from Oklahoma State proogram, Spanish from the Utah Office of Education and a computer science program developed by TI-IN out of Texes.

Students
High School level only at this time.

Technologies Used
Satellite transmission of programs with some audio tie-in to the originating site for students to ask questions or respond to problems.

Evaluation Results
Not avaiable yet. They hope to learn a lot by evaluation of the pilot systems that are being conducted this year. They do believe the German class is the weakest of the three; it seems more like a correspondence class than a technology based distance learning program. Such courses need to be interactive to be effective. They have learned that a good service system to minimize down time due to technology failures is critical.

Participants' Perceptions
They expect to be using distance learning technology to meet future needs in non-traditional settings. The respondent believes that not every student will succeed in such courses; they need to be self-motivated.

Associated Costs
No documentation

Kentucky

Needs Addressed
The main need is enhancement of curriculum offerings through the Ketucky Educational Television,KET which began in 1968.

Subjects
All main core curriculm areas are included in the programming along with some special focus programs such as drug abuse or drunk driving.

Students
All student levels are included with all of the state's district reporting usage and 96% of all classes involved. KET is also active at the college level with continuing education programs.

Technologies Used
Normal televsion is used in most areas, with cable where it is needed. The 1986 legislative session mandated the use of satellite dishes for all schools, so those will be used too.

Evaluation Results
About 86% of the students in the state use the system, about 71% using it daily. About 50% of the instructional time in courses using the system is spent with the educational TV programs. With such extensive use programing and the availablity of so many different programs, respondents believe the system affects the lives of students in this state.[3]

Participants' Perceptions
KET is thought to play a large part in education of the state's population.

Associated Costs
Not documented

Other Needs
To expand and stay abreast of the educational needs of the teachers and students.

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[3]Vittitow,T 1985-86 KET School Utilization Survey Report, Aug. 1986

Louisianna

Needs Addressed
To supplement the curriculum offerings of the rural schools, a telelearning course out of Louisianna State University was begun in 1985.

Subjects
Advanced placement calculus and fine arts.

Students
Grades 9-12, advanced placement only.

Technologies used
Teleconferencing by two-way computer link and a one-way electronic blackboard are used to connect LSU to two classes in one district.

Evaluation Results
None available.

Participants' Perceptions
They are pleased to have the course which was not available otherwise. However, the lack of visual interaction has been frustrating to the instructor, particularly. They are looking into the use of fiber optics and satellite programs.

Associated Costs
Not documented

Other Needs
There are no state sponsored plans to assist or offer programs in distance learning.

Maine

Needs Addressed
To provide opportunity for curriculum expansion where local schools can not. Also to expand traditional school boundaries and communication with new technologies. These programs began in 1985-86.

Subjects
Information network which provides a mailbox, bulletin board, data base libraries, and special interest forums. The computer mail box is also used in a gifted student program to encourge gifted high school students to teach elementary gifted students to use computers and modems and to encourage computer literacy through a game.[4]

Students
The Maine Information Network is used by teachers and administrators. The gifted child program is just beginning to be used with high school students working with K-6 level students.

Technologies Used
A network of microcomputers.

Evaluation Results
Just began in September of 1986 and is to soon to evaluate.

Participants' Perceptions
Most feel it is a good way to increase needed communication thoroughout the educational system.

Associated Costs
Not documented

Other Needs
To expand the present system

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[4]See documents on Maine Computer Consortium and Gifted Child program in file.

Maryland

Needs Addressed
To provide courses to students throughout the school system which are not available at all schools because of declining enrollments, the interactive cable program was established in 1983.

Subjects
Art, histroy, math, English, Algebra II, Latin I &II, and others are presented through the system. They also air some special programs such as drug education.

Students
Grades 9-12, began essentially with advanced placements students but expanding.

Technologies Used
An interactive cable TV connects 12 of the county's 13 high schools and a local community college. A video cassette recorder, projection screen, telephone conferencing unit, facsimile machine and other equipment at each site permit sharing of instruction from any one classroom to all other remote sites with two-way (instantaneous switching) video and (totally open) audio.

Evaluation Results
None available

Participants' Perceptions
This system provides a method of sharing classes among schools which can not provide all such courses alone.

Associated Costs
Start up costs are around $20,000 per school site; the ongoing costs are not documented. The assumption is that "classes offered on interactive cable are somewhat more expensive than classes conducted in a conventional classroom; however, the decision was made to use the necessary funds so that more low enrollment classes would be available to students who want and need them."[5]

Other Needs
To expand this interactive program beyond the one school system that is now using it.

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[5]See brief on Anne Arundel County Public Schools Interactive Cable Program

Massachusetts

Needs Addressed
To help low inrollment schools offer classes they could not economically offer without distance learning technologies, the Massachusetts Corporation for Educational Telecommunication was established in 1985. The technologies also make it possible to share knowledge between schools and to explore new methods of teaching. To begin answering schools perceived needs, the M.E.C.T. has broadcast teacher inservice programs to four rural districts.

Subjects
Video programs to help teachers develop expertise in teaching thinking skills to middle school age students .

Students
Teachers of middle school age students

Technologies Used
Television broadcasting through a cable system plus a teleconference period for interaction among participating teachers after they view the program.

Evaluation Results
None available yet.

Participants' Perceptions
The respondent believes the program provides an economically acceptable system for presenting inservice to teachers in outlying areas.

Associated Costs
Not documented yet

Michigan

Needs Addressed
Many of Michigan's northern districts have small student populations and cannot provide the curriculm offerings available in other districts without the more economically affordable distance learning technologies. Also, declining student enrollments are making specialized classes in many urban districts smaller than is economically feasible. It is hoped that the new technologies can be used to group students in small classes without bringing them physically together. Also, there is a need to teleconference many high quality state and national programs that cannot be offered in the conventional methods.

Subjects
All curriculm areas are open and have been addressed by specific programs as needed. One particularly outstanding program for teaching German was reported for this survey; but it should be noted that they have many programs using a wide range of technologies.[6]

Students
The German program began in two districts in Fall 1986 grade levels 9-12.

Technologies Used
Two way television by microwave transmission with a two way phone line hook up.

Evaluation Results
Evaluation to be done spring of 1987.

Participants' Perceptions
System appears to be working well. This is the first time in 20 years that foreign language programs have been offered in these districts. Three other districts plan to participate soon and eight others are expressing interest.

Associated Costs
Not yet documented

Other Needs
A broad policy to coordinate and set standards for the use of distance learning technologies.

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[6]See item number four on the Michigan telephone survey for a list.

Minnesota

Needs Addressed
A wide range of needs is being addressed through the use of distance learning technologies, from equity of curricula in small schools to sharing talents between schools to providing teacher inservice training. Many programs have been developed to address these needs (20 active demonstration project sites in various districts) and span the full range of technology.[7] One program titled "The East Central Minnesota Cable Coop" which began in 1983 was reported on for this survey.

Subjects
A wide variety, from Spanish to advanced accounting to calculus to speed reading and many more.

Students
K-12 in seven rural districts

Technologies Used
Microcomputers, Public television, Closed circuit TV, satellite transmissions, teleconferencing, Videotaping, Optical scanners,two way interactive TV, and more are used in many of the projects. The Cable Coop uses a two way cable TV hookup with both audio and visual capabilities at each end. Each end site determines the amount and type of programs it needs and pays only for the programs received.

Evaluation Results
Teachers and students have responded favorably to the programs that are being used as indicated by the continued expansion of offerings. The only reported difficulties involve turn over of personnel which breaks the program flow. No formal evaluation reports were provided by the respondent; but some lessons learned include:
1. Establishing a financial incentive program which encourages curriculum development as well as equipment acquisition is important to success of these programs
2. Two way interaction across sites involving voice and eye contact and a positive social atmosphere is critical.
3. Maintaining consistent on-site personnel at each site is essential.
4. Teachers need to be well organized and plan ahead to facilitate and so assignments can be transmitted to and from students efficiently.
5. Fiber optics may be a more effective technology than others because it allows for greater control and response by users.

Participants' Perceptions
Very favorable because of the expanded curriculum offerings made possible

Associated Costs
Analysis of the demonstration sites revealed that for districts to maximize the potential of technology, they needed an average of $75,000 for initial equipment purchases. [8]

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[7] Minnesota Technology Demonstration Sites report by the Minnesota Department of Education (Harold MacDermot from the Division of Instructional Effectiveness is contact person), Jan.1986.

[8] Paper titled "Technology Aid and Levy Funding"

However, detailed cost data and analyses associated with the projects were not obtained.

Other Needs

Hope to continue with alternative funding strategies and learning from these experiences.

Mississippi

Needs Addressed
Enhancement of educational curricula throughout the state through educational TV. Fewer programs offered each year due to financial constraints

Subjects
All topics are included from time to time.

Students
K-12 but emphasis in on elementary

Technologies Used
One way TV and videotapes. 50% of instruction is viewing programs and rest is spent in teacher directed classroom activities

Evaluation Results
None formally gathered. Estimated that about 76% of the teachers use the network at least once per year.

Participants' Perceptions
None formally gathered but people have commented that they are unhappy seeing the program being cut back due to funding problems.

Associated Costs
No figures provided

Other Needs
They hope to explore the use of two way video via PBS but doubtful given financial crisis

Missouri

Needs Addressed
To augment the curricula available in the smaller schools. At this time there are several small projects in the state although none are state sponsored. These projects have been developed in other states. As an example, the Oklahoma language program which began here in 1986 was reported on.

Subjects
German

Students
Levels 9-12 in three rural school districts..

Technologies Used
Satellite transmitted programs with teleconferencing by two way phone link for questions.

Evaluation Results
No formal evaluations available

Participants' Perceptions
Very positive but had been running for only three months at this time.

Associated Costs
Not documented

Other Needs
No formal state goals in this area. The state has no plans to sponsor or develop distance learning programs.

Montana

Needs Addressed

Equity between rural and urban (larger vs smaller) schools. At this time, they use the PBS television system which is available nationally but do not develop any programs in the state. There are no programs ongoing in the state at this time; and because of the funding problems, it is unlikely there will be any for some time.

Nebraska

Needs Addressed
To meet equity needs of rural schools, there are programs which provide direct delivary of instruction to class rooms. An example discussed by the respondent was a foreign language program which began in 1983. Also, there is a need for inservice to teachers and administrators in the school districts. A computer mail box system has been addressing this need since 1985.

Subjects
Foreign language program-- Spanish(largest group), French and German. The program constitutes about 40% of the instructional time in the foreign language classes.
Inservice-- The mail box system is designed to transmit information to all schools in a faster manner than is possible in normal systems.

Students
Foreign language-- grade levels 9-12 in 45 of 375 districts.
Inservice-- Microcomputer terminals in 700 schools.

Technologies Used
The language program broadcasts video taped programs with teleconferencing through phone lines to help students practice speaking skills. In this way, the oral application of the language is strengthened.
The mail box uses microcomputers as terminals to a central computer where information can be gathered and disseminated.

Evaluation Results
Foreign language-- Although only formative evaluation is being done so far, initial tests indicate that students have developed good speaking skills, often better than the teachers who monitor the program.
Inservice-- Not all schools are hooked up to the system so the traditional mailing system must be used for the most critical information. This weakens the value of the electronic system because of costs for running both systems and the time it takes to wait for normal responses from the non-participating schools.

Participants' Perceptions
Foreign language-- Students speak the language better so they stick with the program for higher levels.
Inservice-- The participating schools like the conveniance and speed of the computer network in sending and receiving information.

Associated Costs
Not documented

Other Needs
Foreign language-- To expand this technology to other traditional classes to aid in developing the oral skills of all foreign language students.
Inservice-- To increase the numbers of electronic mail box uses and eliminate the need for the traditional system.

Nevada

Needs Addressed
In January 1986, the State Legislature mandated that equal curricula be offered in math, science andforeign languages in all high schools. They hope to use distance learning technologies to offer these courses to schools without equal offerings. Since 1985, one district has been experimenting with a project to address this mandate.[9]

Subjects
Four different programs are being trialed: 1) Algebra II and Chemistry (by the Tele-Learning Labs, 2)Spanish (by satellite from the Utah Distance Accelerated Learning program), 3)supplementary instruction , drill and practice in general math, science, reading, and social science (by a computerized course), and 4) college credit courses in History 101, Biology 101, and Economics 101 by video correspondence.

Students
Twenty two students at Lund High school.

Technologies Used

[1] Two way audio and computer images through a phone line (the Garfield, Utah model).
[2] Satellite television programs with some two way phone questioning periods from Utah instructors, guided assistance from classroom monitors and the use of computer drill and practice.
[3] Control Data Corporation computers and software.
[4] Video taped instruction sent through the mail.

Evaluation Results
A fairly extensive evaluation was conducted by consultants from the University of Nevada-Reno. Teachers, parents and students in Lund were surveyed and students grades were examined (but an experimental design was not used and statistical comparisons were not possible). Results indicate an overall favorable response by participants, particularly toward the technologies used. Students grades for the courses were not notably different for students in test sites as graphically compared to students elsewhere who received the same instruction from a teacher in their classroom. However, more sophisticated comparisons need to be made before conclusive outcome information is possible.
Suggestions for two of the four programs were provided and are summarized briefly:
1) Regarding the tele-learning programs, there was some dissatisfaction with software (which increased teacher preparation time and decreased student time-on-task time) and lack of interaction between the participants in Lund and persons at the originating site in Elko during the telelearning courses.
2) Regarding the Spanish satellite program, participants suggested that there ought to be a Spanish-speaking person in the school to provide remediation and/or reinforcement.

Participants' Perceptions
Favorable responses were made to all 4 programs by teachers , students and parents . The fact that these courses were offered were seen as a great step forward.

Associated Costs

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[9]See the Lund Technological Delivery System Survey Report, July, 1986.

An average of about $2,726 per student (for Lund only) was spent on one time start up costs and ongoing expenditures of $360 per month are estimated for dedicated phone lines. However the cost analysis did not include maintenance, repair, supply or personnel costs, which are likely to be substantial.

Other Needs

To expand these programs to other rural schools that need them.

New Hampshire

Needs Addressed
To provide instruction to students from experts in several subject areas and also to provide unique programs and events that can be presented in no other way. Public TV is available throughout the state to address this need.

Subjects
All core curriculm areas with special programs at times. Programs are run four hours a day five days a week.[10] This includes 59 serials, 817b lessons, 652 hours of programming during the school year

Students
Levels K-8 are targeted but apply to all ages. Adult telecourses are supplemented by seminars and materials offered on a credit basis.

Technologies Used
Normal Public TV transmissions.

Evaluation Results
None Reported. About have the students in the state use; more may without paying

Participants' Perceptions
Respondent thinks people believe it is a valuable addition to schools' curricula.

Associated Costs

There is a one dollar per year fee per student in addition to normal PBS funding.

Other Needs
Expanded programing to fill the changing needs of the student population.

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[10] Program guides for New Hampshire Public TV.

New Jersey

Needs Addressed
Distance learning technologies need to be infused with our existing curriculum to enhance our present curriculum.

Subjects
All subject areas.

Students
Grades K-12.

Technologies Used
A 4 channel PBS television network using standard broadcast methods.

Evaluation Results
None except for annual utilization studies.

Participant Perceptions
That the programs that have been developed increase the amount of learning and the students' interest in learning.

Associated Cost
Not known by respondent.

Other
There is a need to develop special programs that match the changing need of the students and teachers.

New Mexico

Needs Addressed

To supplement curriculm offerings in rural and urban schools and provide inservice information to teachers in outlying areas. There are no programs providing direct student instruction in the state at this time. A pilot electronic mail box network began in 1986 which may indirectly affect students by informing teachers.

New York

Needs Addressed
Increased courses for small schools to help them meet the curriculm requirements mandated by the state legislature. There are about 15 active projects which involve distance learning technologies at present. Two that began in 1985 were reported on by survey respondents.

Subjects
A.P. English, Calculus and Spanish.

Students
Mostly students who are highly motivated such as advanced placement level students, although junior high school age students participate as well.

Technologies Used
One uses a combination of a teleconferencing through a phone line which transmits voice and computer (like electronic blackboard) data simultaneously.[11]
The other uses two dedicated channels to provide a two way cable television link.

Evaluation Results
Several projects are briefly described, each with an evaluation component in documents provided by Denis J. Martin of the New York State Office of Education Department.[12]
Results of the teleconferencing project[13] identified several advantages (low start-up costs, short start-up time, equipment can be used for other purposes, easy installation, minimal training needed, improves the use of resources through sharing, high quality voice and data transmission, easy to operate by the teacher, easily transportable to several locations, content materials can be easily adapted between the system and traditional classrooms, provides more offerings locally and through higher education institutions, courses can be easily repeated) and problem areas (scheduling conflicts among participating schools, local resistance which require cooperative planning with teacher organizations, meeting certification needs across districts, counties and states). Generally, the respondent reported that this program had proven to be viable and students performed as well as students receiving traditional courses as compared to national averages.

Results of the two way cable project were note formally reported. However the respondent indicated that there are problems with using cable system for instructional programs in several area and with using several channels at once. No elaboration was available.

Participants' Perceptions
Distance learning technologies are answering the needs of smaller schools which cannot offer classes in the traditional ways.

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11 See videotape titled "Delaware-Chenango BOCES Telelearning Pilot Viewing #23

12 See Distance Learning Projects- Operable and Distance Learning Projects- Planning

13 See Final report-- Educational Telecommunications in Small Rural Schools by the Delaware-Chenango Board of Cooperative Educational Services, Norwich, NY.

Associated Costs
Although the telelearning evaluation report lists cost-effectiveness as an advantage because this project allows for sharing of financial and personnel resources among several units, there was no formal cost-benefit analysis presented.

Other Needs
They need to develop exanded curriculm offerings within the system to meet the needs of a larger segment of the student population.

North Carolina

Needs Addressed
To achieve a standard base curriculm throughout the state, particularly within the smaller schools. The project developed to address this need, called Down-East Project began in 1986.

Subjects
Inservice instruction on computers in education, their use and how to access them for different functions.

Students
Teachers participating in inservice will experience the system first hand so they can evaluate its suitability for their students.

Technologies Used
Central computers that were accessed through a satellite transmission that was linked to a phone system.

Evaluation Results
A high percentage of the teachers at remote sites were able to learn the materials in an acceptable way. The teachers noted some problems but generally felt that the system would be useful to students in targeted schools.

Participants' Perceptions
Ninety percent of the teacher participants indicated that they would predict success with this process in future efforts in the class rooms.[14]

Associated Costs
The pilot program hade a total budget of $50,000 but no cost analysis was made.

Other Needs
To expand the program to classroom settings.

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[14] See Program Evaluation for Distance Learning by Satellite for details of this teachers survey.

North Dakota

Needs Addressed

To supplement current classroom curricula for advanced placement students and other students who are motivated to learn (particularly with language courses). At the present time, there are no state sponsored projects because of the lack of funding.

Ohio

Needs Addressed
Enhancement of curriculum programs through the use of distance learning technologies. Also, to reach into low enrollment classes and provide offerings that are not now available because of costs.

Subjects
All curriculum areas.

Students
All grades K--12.

Technology Used
Statewide ETV network. Signal can be recieved by 610 ot the 615 districts in the state which represents potentially about 2,000,000 students per year.

Evaluation Results
None except for utilization studies.

Participant Perceptions
Distance learning has provided an important uplift for the educational process. Its contribution will be greater in the future if it is allowed to grow.

Associated Cost
Amounts unknown to respondent, but costs are almost totally born by the state with some subscription fees charged by ETV network to the districts.

Other
We hope to develop programs for low enrollment classes that cannot now be justified under traditional teaching methods.

Oklahoma

Needs Addressed
Distance learning technologies can provide the means to offer courses that cannot be offered live in traditional ways, mostly in small schools that cannot offer needed courses in any other way. The Okalahoma State University teleconferencing project began to respond to this need in 1985.

Subjects
German I & II , Physics I

Students
All types of 9-12 level students in 99 out of 630 districts.

Technologies Used
Satellite transmissions of program materials and live audio interaction over telephone lines, with computer assisted drill and practice on alternate days. Students spend 2 days a week for German and 3 days a week for Physics with the broadcasts.[15]

Evaluation Results
Nearly all the students who enroll complete the courses with credit. Respondent was very positive indicating that students perform as well as average college freshman who take similar courses, except they take the course at a slower pace.

Participants' Perceptions
A survey of principals identified the following strengths and weaknesses of the German program: [15] Strengths are that it provides foreign language instruction and a cultural learning experience to students who wouldn't otherwise get it. It also exposes these students to an important use of technology, promotes self-motivation by encouraging independent study, and the level of instruction and quality of materials were excellent. Weaknesses identified by principals were as follows: There were schedule conflicts between the satellite broadcasts and the schools' schedules; the broadcasts need to be increased to three days per week to maintain students' interest, provide more subject matter, and increase interaction between students and the teacher; the turn around time between testing and reporting of scores to students was too long; there needs to be a real "teacher in the classroom"; the originating site personnel need to return phone calls and provide promised materials more promptly; administrators and the classroom facilitators need inservice training in the use of the network. Fifty three percent of the principals stated that they had altered the grading scale used by the originating instructor to "accomodate local conditions/policy at the school" suggesting that the performance measures used for the evaluation of the program may be invalid.

Associated Costs
Costs for start up are described. But maintenance and all other costs are presented or analyzed in the evaluation reports presented.

Other Needs
Expand the Oklahoma State network to include other courses.

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[15] German by Satellite: A Foreign Language Alternative; by Baker,B.O.,Garrett,S.

Oregon

Needs Addressed

To provide instruction when traditional methods are not available. There are no programs involving the use of distance learning in this state at present. They are laying the groundwork for funding beginning in 1989 or 1990.

Pennsylvania

Needs Addressed
To provide curricula to many rural schools which they can not offer in traditional ways. In 1986 they began a joint program with Utah schools (Garfield, Wasatch, NUES) which is expanding rapidly.[16]

Subjects
Logo, Physics and Calculus.

Students
K-12 levels in 25 out of 500 districts.

Technologies Used
Apple computers with light pens, connected by telephone lines for teleconferencing. Audio conferencing via telephone lines.

Evaluation Results
Just starting no real evaluations at this time.

Participants' Perceptions
Three different student groups participating in different learning tasks found the tele-learning experience to be rewarding and beneficial.

Associated Costs
Cost of around $10,000 per school per year has been the norm according to reports from Utah, depending on equipment setup costs, teachers and long distant charges. Other cost analyses have not been conducted.

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[16] See Mansfield-Utah Teleteaching Project materials.

Rhode Island

Needs Addressed
With a decreasing student population, Rhode Island must offer classes to smaller numbers of students. Distance education offers a way to keep the numbers of classes offered but at a lower cost per student.[17] There is no ongoing project at this time but the respondent provided information on a program that was run last spring (1986).

Subjects
Drunk Driving panel discussion right before the "Prom" season.

Students
11 &12 grades throughout the state

Technologies Used
Cable TV including two way televsion link.

Evaluation Results
None reported. They have had negative experiences in the state with educational TV--teachers feel threatened and do not like teaching in front of a camera so they can participate in the creation of programs.

Participants' Perceptions
Increased awareness of dangers involved with driving while drunk.

Associated Costs
Not described.

Other Needs
Hope to solve the future problem of how to maintain the number of classes offering the present curriculm inspite of declining enrollments.

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[17] See Using Technology to Maintain Educatioal Offerings , R.I. state paper

South Carolina

Needs Addressed
To support and strengthen curricula in school system by broadening the types of experiences student can have during their education a TV network has been operational since 1960.

Subjects
Over 200 programs offered on all subjects.

Students
Entire range K-12 participate in 1031 classrooms throughout the state (42% of all teachers use with 77% of the students.

Technologies Used
I.T.F.S. stations throughout the state using 4 channels to broadcast on.
Also uses teleconferencing through a two way link 8-10 times a year on special subjects.

Evaluation Results
They are conducting a study in which they are collecting data from every high school in the state to see what each school is offering and how well students are doing to help them judge equality of the various curricula. They were going to send a report but have not done so yet.

Participants' Perceptions
With increased usage there should also be higher state wide test scores. Although there is no proven relationship, the participants attribute these increases to the use of educational TV.

Associated Costs
Unreported

Other Needs
They hope to set up an electronic mail box network to aid in information dissemination.

South Dakota

Needs Addressed
To support the rural school system with needed curriculm additions, programs that can be brodcast over public television such as a South Dakota history program have been developed since 1980 (also use TI-IN for inservice).

Subjects
South Dakota History.[18]

Students
About 20,000 students in grade levels 5 & 6 in 96 of the 196 districts throughout the state.

Technologies Used
State Educational TV station with standard broadcast technology and via videotapes with accompanying text materials to be used by students with teacher guidance.

Evaluation Results
Students are tested each year to evaluate the effectiveness of the program. Results indicate an increase in students' understanding; but no data were made available for review.

Participants' Perceptions
According to respondent the program is very well received by teachers who need help in presenting an updated course.

Associated Costs
Except for the development of the program itself, the costs have been for TV time and the teacher workbook to help with in-class activities. There is also a new text book that follows the 32 - 15 minute video lessions. Cost analyses were not made available.

Other Needs
They are now programming a state geography program.

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[18] See looseleaf text materials titled "South Dakota Adventure" in files.

Tennessee

Needs Addressed
To supplement school programs, public TV has been used since the early 1960's to broadcast the programs developed in the state.

Subjects
Varies- used to cover all areas as needed.

Students
All levels, throughout the entire state.

Technologies Used
Standard TV broadcast.

Evaluation Results
No empirical data collected to evaluate; but the respondent believes the system is well used.

Participants' Perceptions
Believed to be well received by teachers and parents alike.

Associated Costs
Unreported

Texas

Needs Addressed
To supplement curricula, particularly in smaller rural school systems and because of a teacher shortage, there are two major distance education systems which are well used in Texas and by other states: TI-IN satellite nework[19] which has been used since 1984 and Digital Computer Systems.(DCS) which began in 1985. The TI-IN network was reported on during this survey.

Subjects
Advanaced placement programs in languages, physics, computer math, algebra, and computer science.

Students
TI-IN has programing for all levels (K-12) but is mostly used in grades 9-12 in 1100 districts in 20 regions and in other states by advanced placement students. DCS is used for teacher insrevice by many states as a way of upgrading the skills of staff.

Technologies Used
TI-IN uses a satellite broadcasting network and a phone link to instructors that is available for problems and questions from students and teachers.
DSC is a computerizedd instructional system that can be used to teach staff members through different software programs.

Evaluation Results
A report was to be sent to us; but has not been received yet. The respondent reported that 75% of the students participating in TI-IN receive an A or B, with only 5% failing (below C work). However, most of the students are advanced placement.

Participants' Perceptions
TI-IN appears to be well received and is in use in many states at the present time.

Associated Costs
The starting cost for the fist year is $15,000, which includes the hardware to recieve the satellite programing and the first year's subscriber fees. No sophisticated cost-benefit analyses appear to have been done for this high profile program.

Other Needs
Trying to develop a computer information netwok to facilitate exchange of information within the school systems.

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[19] See TI-IN advertizing information in file.

Utah

Needs Addressed
Distant learning technologies help to solve curriculm problems in schools where funding and/or personnel are not available to provide the course offerings that are needed. Several approches are being tried in this state. Two major programs were identified for this survey: 1) the Distance Accelerated Learning: Spanish project (DALP)[20] which began in 1985 and the Remote Site Instruction Project (RSIP)[21] which began in 1984.

Subjects
Spanish for DALP and A.P. physics for RSIP.

Students
Levels 10-12 for DALP in 13 Utah school districts and 15 districts in other states (47 classrooms altogether). For 11 & 12 grade advanced placement for RSIP in two remote sites.

Technologies Used
DALP uses television broadcast by satellite (or video replay) and two way phone hookup for conferencing, with computer assisted drill and practice, classroom activities and student materials.
RSIP uses two way computer and audio teleconferencing over telephone lines.

Evaluation Results
DALP program students were able complete approximately one year of Spanish in the one semester program time. A rather extensive formative evaluation noted several areas to consider in improving the program (including the use of videotapes rather than live broadcasts). Post hoc comparative analyses between students' scores on MLA subtests, national norms, and performance of second year Spanish students in Utah indicated that the program students did not perform as well at a statistically significant level but did about as well at a practical level.

The RSIP program was found in one evaluation to produce results equivalent to a control group receiving traditional instruction. Another formative evaluation identified several strengths and weaknesses of the program. Most of the advanced placement students were able to complete what was considered to be a basic university level freshman 101 course.

Participants' Perceptions
DALP participants had mixed reactions to the program; but where no Spanish program was available, it provided an attractive alternative.

Students in remote sites participating in the RSIP program also had mixed reactions. They all lived in the same suburban district with the originating school and some students resented having to take the class remotely when they lived so close. There were also

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[20] See informational packet titled "Instructional technology Unit".

[21] See paper "Remote Site Instruction Project at Bountiful High and U. Of Utah" Instrutional Psychology Report Series, Technical Report #2.

problems with the remote site classroom monitor which complicated the test of the technology.

Associated Costs

A fairly rigorous cost/benefit analysis was conducted as part of the DALP evaluation which indicated that to be cost effective, the program would have to increase performance while amoratizing costs across more students and classrooms.

Some start-up cost figures were gathered for the RSIP program but the analysis did not compare costs to outcomes or include the less obvious costs associated with participants' time and lost opportunities. Although the technology is less expensive than some, the costs associated with hiring reliable monitors should be considered in such an analysis.

Other Needs

Future plans include a microwave system for teacher inservice,with possible expansion of both programs.

Vermont

Needs Addressed
To offer a wide range of instructional programming to all students (K-12) in the state. The only technology being used is Vermont Instrutional Television (ETV)

Subjects
All subject areas are addressed through the programs aired.[22]

Students
All levels K-12 throughout the state.

Technologies Used
Standard PBS broadcast network with dedicated times from 8am to 2:30 pm five days a week. They also have a video library that lends copies of the programs out for use to provide flexability beyond the normal program times.

Evaluation Results
Only that the use of programming is universal in all classrooms.

Participants' Perceptions
None gathered

Associated Costs
Unknown

Other Needs
They hope to develop their own programs and continue to review outside programs for the network.

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[22] See Instructional Television Guide 1986-87 for Vermont ETV

Virginia

Needs Addressed
AP classes for students in smaller schools that could not at this point offer them on thier own because they have too few students to make up a normal class or no teacher with the needed skills available. To do this, the needed courses from one high school have been broadcast to remote sites through a program called The Electronic Classroom since 1983.

Subjects
Calculus, Latin I & II and English, all for advanced placement students.

Students
About 300 high school level students (grades 10-12) in 27 districts and 31 classrooms

Technologies Used
A closed circuit cable TV transmission (one way), a phone line for conferencing between remote sites and classrooms developed for transmission and reception of programs. [23]

Evaluation Results
Data was not gathered to test outcomes. But more and more schools and students want to participate and courses were offered where they had previously been unavailable. After the first year, a screening process was used to make sure the students had the back ground to take the advanced classes.

Participants' Perceptions
Very well excepted because it provided the needed classes.

Associated Costs
Unreported

Other Needs
To expand this program to other schools in other subjects.

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[23] See booklet titled The Electronic Classroom: An Education Success Story

Washington

Needs Addressed
To expand curricular offerings in schools with narrow offerings, particularly in small rural schools. There is currently only one project, in Eastern Washington which began in 1986.

Subjects
Spanish, Japanese, pre-calculus and advanced English.

Students
Rural high school students in grades 9-12 in 15-18 districts

Technologies Used
Television programs via satellite transmission (one way) and two way teleconferencing via a phone line.

Evaluation Results
Unreported

Participants' Perceptions
Unreported

Associated Costs
Unreported

Other Needs
They hope to process the television through a cable link to improve the quality of reception.

West Virginia

Needs Addressed
Distance education supplements curricula in traditional classroom settings. To accomplish this, they have two systems in place: an educational TV network and a micro-computer network which began in 1981. We will report on the West Virginia Micro-computer Educational Network for this survey.

Subjects
Computer literacy and some occupational skills.

Students
Students in grade levels 9-12 use this system, as do adults. There are over 2200 users of this system each year.

Technologies Used
A two way fiber optic television system with computers also linked together.

Evaluation Results
The respondent reported that evaluation has been done but this informatin has not yet been received.

Participants' Perceptions
There is high use of the system by students and adults alike .

Associated Costs
Unreported

Other Needs
They hope to expand their present educational system to include satellite hoops for transmission to more areas of the state.

Wisconsin

Needs Addressed
Distance education technologies can make it possible to achieve equality in curricula between rural and urban school systems. There are five active projects at present and we will report on the two most important: the University of Wisconsin's Educational Television Network (ETN) which began in 1979 and the Trempealeau County "Project Circuit" which began in 1976.

Subjects
ETN provides foreign language classes.
Circuit offers math, Spanish and business classes

Students
ETN is broadcast to 9-12 graders in 12 of the districts in the state.
Circuit is used in 9 districts, also at the 9-12 grade levels

Technologies Used
ETN uses teleconferencing via two way telephone link to provide vocal communication only, along with text books and cassettes for students to listen to.
The Circuit program uses a cable or microwave transmission network with two way audio and visual.

Evaluation Results
Respondent reported that an evaluation had been done; but it has not been received yet.
They claim the ETN program works very well for helping students develop their speaking skills (vocal skills).
An evaluation of the Circuit program suggests that students in the extended classroom do as well as those in tradional classrooms, according to test scores.

Participants' Perceptions
Participants clarify that good interaction with the teacher through the phone link is critical to make the ETN program a success.
When selected students are taking the Circuit class they do well and enjoy the class.
Participants point out that students must have some back ground in the areas covered by the classes taken .

Associated Costs
Not Reported

Other Needs
To continue programs but with the districts paying part of the cost, matching funds. This would allow for expansion of the programs.

Wyoming

Needs Addressed

Equality between rural and urban school programs. They are exploring the technologies associated with distance education to see how they can be used in Wyoming to meet their needs based on their ability to pay for them. A survey is being done to help in this assessment; but there are no distance education projects currently active in the state.

Appendix B

Telephone Survey Instruments

[SPACE FOR RECORDING ANSWERS REMOVED FOR THIS APPENDIX COPY]

WIRE Survey of State Sponsored Distance Learning Projects

Form ID # ___

Name & Title _____

Phone # ( ) ___-_____extension_____

Mailing Address _____

_____

_____

Introduction Used to Find Target Respondent:

Hello, I am calling from Salt Lake City, Utah. I would like to speak to the person in your department of education who is most knowledgeable about state sponsored curriculum projects. I am particularly interested in projects that use telecommunications for distance learning.

Who would you recommend that I speak to for this survey? What is her/his title or description of position? What is her/his telephone number? Who else might be a good person to talk to? Title? Telephone? Who else? Out of these people, who would you recommend I talk to first? [IF THEY ARE QUALIFIED TO ANSWER, GO TO TARGET DIALOGUE.]

Introduction Used with Target Respondent:

Hello. Is this Dr._____?

This is Robert Quinn, and I am calling from Salt Lake City, Utah. The Utah State Office of Education has asked my group to do a nation-wide survey of departments of education. The purpose for this survey is to describe how telecommunications and related technologies are being used in public schools (K-12) for distance learning. The results of this survey will be published nationally. We are surveying all of the states, and we are particularly interested in including information about distance learning projects in your state.

You were referred to me by _____ as a person in your state who is knowledgeable about distance learning projects. [IF THEY ARE NOT QUALIFIED TO ANSWER, GO TO SECOND PARAGRAPH OF FINDING DIALOGUE.]

The questions that I need to ask should take about 25 minutes. I want to add that I would be happy to answer any questions you might have about the study, either now or later. Okay?

To begin with, let me describe the kinds of projects we are interested in for this survey. We would like to focus our questions on your state's use of electronic telecommunications for distance learning in the public schools (K-12).

We are only interested in projects that are sponsored by your state department of education. This would include such things as: state developed educational television programs; teleconference using television, telephones or computers; the use of electronic chalkboards or other similar devices; and the use of microwave or satellite communication to distribute instruction.

> [DON'T READ THIS PART UNLESS ASKED: Sponsorship means that the funds for the project originate with or flow through the state department of education. The state has some measure of responsibility for the creation or conduct of the project even if the funds or ideas for developing the project may originate elsewhere.]

Lets exclude from consideration nationally distributed educational television programs such as those produced by the Childrens' Television Workshop. Lets also exclude projects in your state that are not sponsored by the state department of education, and also radio or television stations operated as labs in high schools.

Do you have any questions about the type of distance learning projects we would like to discuss in this survey? [IF NEEDED, CLARIFY THE SCOPE AND FOCUS OF THE SURVEY.]

1. To start off, what do you see as the appropriate role of distance learning in the public schools (K to 12) in your state?

   (PROBES: What different types and applications of technologies do you consider for use in distance learning? What are the major reasons for its use?)

2. Overall, do you think distance learning strategies will have a positive or negative impact on education in your state? Do you think the impact will be VERY POSITIVE/NEGATIVE or MILDLY POSITIVE/NEGATIVE?

   (1) [ ] VERY POSITIVE
   (2) [ ] MILDLY POSITIVE
   (3) [ ] mixed (Don't read this option)
   (4) [ ] MILDLY NEGATIVE
   (5) [ ] VERY NEGATIVE
   (6) [ ] can't say or don't know (Don't read this option)

3. (Don't ask this question if they CAN'T SAY OR DON'T KNOW for question 2) Why do you think distance learning will have a POSITIVE / NEGATIVE / MIXED impact in your state? [THIS IS A BIG ISSUE--PROBE THOROUGHLY]

4. How many new or ongoing projects which include distance learning are being conducted this year in your state?

   _____ (number)

As I mentioned earlier, the purpose of our survey is to describe the range of experiences that states are having with distance learning projects. To help with this, I would like to ask you about the one distance learning project in your state that you feel is most successful. [THEY MAY USE ANY CRITERIA IN SELECTING THE MOST SUCCESSFUL PROJECT.]

Following that, I would also like to ask you about a distance learning project in you state that might be having difficulties in being successful. [THEY MAY USE ANY CRITERIA IN SELECTING THE LEAST SUCCESSFUL PROJECT, BUT ENCOURAGE THEM TO DISCUSS SOME PROJECT.]

First, which project would you say is most successful?

Most Successful Project in the State

5. Project title:_____

6. Who is the contact person for this project?

   Name & Position:_____

   How to locate:_____
   (get just enough to contact, don't bog down)

7. What year was this project started? _____ (year)

8. Briefly, what goals or needs are being addressed by the project? (Be sure to probe for other goals or needs)

9. What curriculum content is treated in the project?

10. Grades served (circle all): K 1 2 3 4 5 6 7 8 9 10 11 12

11. Student groups served (rural, handicapped, minority, etc.):

   (1) [ ] All kinds of students served
   (2) [ ] Rural
   (3) [ ] Minority _____
   (4) [ ] Handicapped _____
   (5) [ ] Other _____

12. What schools or districts are included in the project?

   (1) [ ] ENTIRE STATE/AVAILABLE TO ENTIRE STATE
   (2) [ ] ONE OR MORE DISTRICTS (list)_____
   (3) [ ] INDIVIDUAL SCHOOLS (how many?)_____
   (4) [ ] OTHER (describe)_____

   _____

13. About how many classrooms are actively involved in this project?
   _____ (number)

14. What technology is used in this project for distance learning? (check all technologies used)

(01) [ ] Television broadcast
(02) [ ] Television by microwave transmission
(03) [ ] Television by satellite transmission
(04) [ ] Television by pre-recorded tape distribution
(05) [ ] Television (other)_____
(06) [ ] Audio broadcast by radio
(07) [ ] Audio one-way by telephone or other means

(08) [ ] Teleconferencing by two way television link
(09) [ ] Teleconferencing by two way radio link
(10) [ ] Teleconferencing by two way telephone link
(11) [ ] Teleconferencing by two way computer link
(12) [ ] Teleconferencing (other)_____

(13) [ ] Electronic chalkboard
(14) [ ] Computers not interactively linked to other sites
(15) [ ] Other_____

15. How is distance learning being used in this project?

16. What percent of the instructional time involves the distance learning technology? ____ (percent)

17. Has an evaluation or research been done of this project?

(1) [ ] YES
(2) [ ] NO (Skip to item 20)

18. What were the main purposes of the study? (probe for other purposes and check all mentioned)

(1) [ ] Improvement of the curriculum/instruction
(2) [ ] Improvement of distance learning technologies
(3) [ ] Increased use of the program by potential users
(4) [ ] Testing for program outcomes or effects
(5) [ ] Description of the program and its use
(6) [ ] Program costs or cost-effectiveness
(7) [ ] Research into distance learning
(8) [ ] Other_____

19. Give a brief description of the study findings.

20. Considering everything you know, what would you consider to be the most successful aspect of this project?

21. Would you send us any short documents (20 pages or less) describing the project, the evaluation, and the project costs? [GIVE YOUR MAILING ADDRESS]

[ ] DESCRIPTION; [ ] STUDY; [ ] COSTS; [ ] NO REPORTS

Less Successful Project in the State

22. Project title:_____

23. Who is the contact person for this project?

Name & Position:_____

How to locate:_____

(get just enough to contact, don't bog down)

24. What year was this project started? _____ (year)

25. Briefly, what goals or needs are being addressed by the project? (Be sure to probe for other goals or needs)

26. What curriculum content is treated in the project?

27. Grades served (circle all): K 1 2 3 4 5 6 7 8 9 10 11 12

28. Student groups served (rural, handicapped, minority, etc.):

(1) [ ] All kinds of students served
(2) [ ] Rural
(3) [ ] Minority _____
(4) [ ] Handicapped _____
(5) [ ] Other _____

29. What schools or districts are included in the project?

(1) [ ] ENTIRE STATE/AVAILABLE TO ENTIRE STATE
(2) [ ] ONE OR MORE DISTRICTS (list)_____
(3) [ ] INDIVIDUAL SCHOOLS (how many?)_____
(4) [ ] OTHER (describe)_____

_____

30. About how many classrooms are actively involved in this project?
_____ (number)

31. What technology is used in this project for distance learning? (check all technologies used)

(01) [ ] Television broadcast
(02) [ ] Television by microwave transmission
(03) [ ] Television by satellite transmission
(04) [ ] Television by pre-recorded tape distribution
(05) [ ] Television (other)_____
(06) [ ] Audio broadcast by radio
(07) [ ] Audio one-way by telephone or other means

(08) [ ] Teleconferencing by two way television link
(09) [ ] Teleconferencing by two way radio link
(10) [ ] Teleconferencing by two way telephone link
(11) [ ] Teleconferencing by two way computer link
(12) [ ] Teleconferencing (other)_____

(13) [ ] Electronic chalkboard
(14) [ ] Computers not interactively linked to other sites
(15) [ ] Other_____

32. How is distance learning being used in this project?

33. What percent of the instructional time involves the distance learning technology? ____ (percent)

34. Has an evaluation or research been done of this project?

(1) [ ] YES
(2) [ ] NO (Skip to item 20)

35. What were the main purposes of the study? (probe for other purposes and check all mentioned)

(1) [ ] Improvement of the curriculum/instruction
(2) [ ] Improvement of distance learning technologies
(3) [ ] Increased use of the program by potential users
(4) [ ] Testing for program outcomes or effects
(5) [ ] Description of the program and its use
(6) [ ] Program costs or cost-effectiveness
(7) [ ] Research into distance learning
(8) [ ] Other_____

36. Give a brief description of the study findings.

37. Considering everything you know, what would you consider to be the main aspect of this project that keeps it from being more successful?

38. Would you send us any short documents (20 pages or less) describing the project, the evaluation, and the project costs? [GIVE YOUR MAILING ADDRESS]

[ ] DESCRIPTION; [ ] STUDY; [ ] COSTS; [ ] NO REPORTS

Even though we don't have time to discuss each distance learning project in your state, I would like to send you a one page questionnaire for each of the other distance learning projects you mentioned. Would that be okay? (Get their mailing address)

Now, lets move from discussing specific projects to discussing general issues regarding distance learning in your state.

39. What plans, if any, does your state have in the next three years for curriculum projects involving distance learning? Briefly describe these planned projects (PROBES: Goal, curriculum content, students served, technology involved).

40. What general lessons have you learned about the effective use of distance learning technologies? (PROBE: What advice would you give to a person in another state with responsibilities for distance learning projects? What factors get in the way of effective projects?)

41. Are there other in your state department of education that we should also call to learn more about distance learning in your state?

    Name & Position:_____

    How to locate:_____
    (get just enough to contact, don't bog down)

    Name & Position:_____

    How to locate:_____

42. Who would you identify as the two leading experts in the nation in distance learning?

    Name & Position:_____

    How to locate:_____

    Name & Position:_____

    How to locate:_____

Thank you for your kind assistance! You have been very helpful.

[REMEMBER TO RECORD INTERVIEW TIME AND TO CHECK ALL ANSWERS.]

Rule Book for Technology Survey

A. Who to talk to:

You want to identify the highest official in the state department of education who is directly involved with curriculum projects that involve technology (computers, telecommunication, etc.) We are interested in projects that use technology to teach ANY topic (language, reading, mathematics, history, etc.) We are not limited to projects that teach about technology, such as computer programming (but we are interested in these projects as one type of use of technology in education).

Do not spend a lot of time interviewing or discussing the survey with individuals who do not qualify for the target group.

B. Before you start . . .

Make sure you have the forms, at least three sharpened pencils, and a clear working area for writing. Make sure the work place is quiet and that it will stay that way for the duration of the interview. Make sure your throat is clear sounding. If you have a cold, take a decongestant or something to sound normal. Have a glass of water available to help you if you get a frog in your throat during an interview.

C. For the interview be sure to . . .

1. Mark the time the interview starts on the cover sheet.

2. Read the questions clearly without giving suggested answers. Memorize the questions and the layout of the form so you can read questions without hesitation and quickly find the proper place to record answers.

3. If it seems that a question has been misunderstood, do not tell the respondent that you think he misunderstood. Instead, these responses may be of help.

> Could I read the question and the answer I've written down just to be sure I have everything you wanted to say.
>
> I think I may not have read the question correctly, so, may I read it again to be sure.

4. Use neutral probes as needed. If you are in doubt about how to interpret the respondent's answer or what it means, we will be in even greater doubt. Probe until you are sure. But, do it neutrally. A statement like, "Then what you really mean is ..." does not convey neutrality.

Sometimes in answering one question, the respondent will also answer another question. However, you should ask each question to be sure it is answered completely. However, do this in a way that acknowledges their earlier comments. Probe especially on open ended items that have been partially answered in response to other questions.

For example, you might say:

> I think an earlier comment you made might have answered some of the next question. Let me read the question and my notes on your response, and then you can clarify or add to the comments.

Do not synthesize an answer to a question out of their earlier comments when they have not specifically addressed the content of a question, even when their position is obvious to you. However, for questions with specific multiple-choice answers, their earlier answers may clearly answer these questions too. In cases where they have in effect given nearly verbatim responses you may use the following statement.

> You might have already answered the next question. It asks [read the question], and you said [read recorded answer]. Is that correct?

Before accepting an answer of "I don't know," be sure to probe. Respondents frequently use that phrase in a way that says, "I'm thinking!"

Some example of probes you might use:

> Yes, I see, (or) Uh-huh ... (stated in an expectant manner and followed by a pause)
>
> Could you be a little more specific?
>
> I am not sure I am entirely clear about what you mean. Could you explain it a little more?
>
> Could I read back what I have written down to be sure I have exactly what you want to say?

DO NOT agree with answers the respondent gives.
DO NOT EXPRESS YOUR OPINIONS regarding education, technology, distance learning, the inadequate funding of education, politics, the weather, or any other topic. This is a vital difference between a neutral probe and a biasing probe.

5. Write down everything.

   If a respondent qualifies an answer, or if a comment (probe) you offer stimulates a new response, write it down. Attempt to get it in verbatim form if it doesn't break the flow of the interview. You may need to rewrite answers after interviews to expand out what was said. Take good enough notes during the interview to allow you to accurately expand the answers later.

6. Before you hang up scan over the form to be sure you have asked all of the questions for each project mentioned.

7. If the length of the survey causes them to want to terminate in the

middle, ask if you can call back to finish it. As a last resort, ask who else in their office you might talk to.

D. When you hang up:

1. Immediately note time and calculate length of interview. Record this on the survey cover sheet.

2. Immediately go over every single answer to make sure it was done correctly. Fully expand out notes for answers. Rewrite answers which you even suspect might be illegible.

E. At the end of each work day:

1. Fill out the log of time and calls you have made for this survey. Record the long distance time used.

2. Call Bill Quinn (home 225-0885; work 378-7080) to report the day's work and discuss any problems or concerns. If a big problem comes up during the day don't hesitate to call me or David Williams (home 374-8168; work 378-2765) to discuss it.

Possible Answers to Refusals for Technology Survey

REASON FOR REFUSING	. . . AND POSSIBLE RESPONSES
TOO BUSY	This should only take a short time. Sorry to have caught you at a bad time. I would be happy to call back. When would be a good time to call in the next day or two?
NOT INTERESTED	Its extremely important that we get accurate information about each of the states otherwise the results won't be very useful. So, I'd really like to talk to you.
OBJECTS TO SURVEYS OR TO PHONE SURVEYS	We think this particular survey is very interesting because the questions deal with an important issue in American Education. We are doing this survey by telephone because this way is so much faster and it gives you a better opportunity to express exactly what you want to say.

What the Respondent Might Like to Know About Technology Survey

WHAT ORGANIZATION IS CONDUCTING THE SURVEY?

The study is being done by the Wasatch Institute of Research and Evaluation, a consulting firm which provides research and evaluation services concerning problems in education. Dr. Blaine Worthen its founder.

WHO IS SPONSORING (PAYING FOR) THE SURVEY?

The Utah State Office of Education has commissioned this study to aid them in planning future curriculum projects.

WHAT IS THE PURPOSE OF THIS SURVEY?

There is a lot that isn't known about the level and use of technology in distance learning education in public schools. Most of the prior research deals with distance learning in higher education. This survey will describe the current level of state sponsored distance learning projects in each of the 50 states. The survey will be published in a national journal so that educators and scholars across the country may learn what each state is doing in this important area. This information will also aid the Utah State Office of Education in planning future curriculum projects.

WHO IS THE PERSON RESPONSIBLE FOR THE SURVEY? MAY I TALK TO HIM?

Department at Brigham Young University. I am sure he would be happy to talk to you. I can have him call you, or if you like you can call him collect. His office telephone number is (801) 378-2765.

HOW DID YOU GET MY NAME?

You were referred to us by _____ as the person in your state department of education who would be most knowledgeable of the current programs your state is sponsoring involving technology. (IF THEY SAY THEY ARE NOT QUALIFIED, ASK: Who in your state department of education would be better qualified to help with this survey? What is their position title? Do you know their telephone number?)

IS THIS CONFIDENTIAL?

We will report findings by state, region, and for the entire country. Your name will not appear in the report, and only a summary description of the professional positions of respondents will be reported.

CAN I GET A COPY OF THE RESULTS?

Yes, we would be glad to send it to you, if you will give me your current address. We hope to have the results ready in about three months.

[PRINTED ON WIRE LETTERHEAD]

Dear

Thank you for your participation in the telephone survey regarding your state's use of distance learning technology in the public schools. As I mentioned earlier, the Utah State Office of Education has asked us to do a nation-wide survey to describe how telecommunications and related technologies are being used in public schools (K-12) for distance learning. The results of this survey will be published nationally. We are particularly interested in including information about all distance learning projects in your state.

I have included some brief survey forms to identify the key facts about the distance learning projects in your state that were not discussed in our earlier telephone conversation. Please take a few minutes to describe these projects. A stamped, self addressed envelope is included for your convenience.

In filling out the forms, include such things as: state developed educational television programs; teleconference using television, telephones or computers; the use of electronic chalkboards or other similar devices; and the use of microwave or satellite communication to distribute instruction. However, please exclude from consideration nationally distributed educational television programs such as those produced by the Childrens' Television Workshop.

If you have any questions please call me at (801) 250-0784. Thank you again for all of your help.

Yours truly,

Robert Quinn,
Research Associate

WIRE Survey of Public Education Distance Learning Projects

Form ID # ___

1. Project title:_____

2. What year was this project started? _____ (year)

3. Briefly, what goals or needs are being addressed by the project?

4. What curriculum content is treated in the project? (Spanish, Algebra, state history, etc.)

5. How is distance learning being used in this project?

6. What percent of the instructional time involves the distance learning technology? ____ (percent)

7. Grades served (circle all): K 1 2 3 4 5 6 7 8 9 10 11 12

8. Student groups served (rural, handicapped, minority, etc.):

   (1) [ ] All kinds of students served
   (2) [ ] Rural
   (3) [ ] Minority _____
   (4) [ ] Handicapped _____
   (5) [ ] Other _____

9. About how many schools in your state are actively involved in this project? _____ (number)

10. What technology is used in this project for distance learning? (check all technologies used)

(01) [ ] Television broadcast
(02) [ ] Television by microwave transmission
(03) [ ] Television by satellite transmission
(04) [ ] Television by pre-recorded tape distribution
(05) [ ] Television (other)_____
(06) [ ] Audio broadcast by radio
(07) [ ] Audio one-way by telephone or other means

(08) [ ] Teleconferencing by two way television link
(09) [ ] Teleconferencing by two way radio link
(10) [ ] Teleconferencing by two way telephone link
(11) [ ] Teleconferencing by two way computer link
(12) [ ] Teleconferencing (other)_____
(13) [ ] Electronic chalkboard
(14) [ ] Computers not interactively linked to other sites
(15) [ ] Other_____

11. Has an evaluation or research been done of this project?

(1) [ ] YES
(2) [ ] NO (Skip to item 13)

12. Give a brief description of the study findings.

13. Considering everything you know, what would you consider to be the most successful aspect of this project?

Would you send us any short documents (20 pages or less) describing the project, any evaluation of the project, and the project costs?